

REMARKS

In the Office Action dated March 3, 2005, the Examiner stated that, in Applicants' previous response, the Examiner believed that the double-patenting rejection based on the (then) co-pending Schuster application Serial No. 10/678,808 had been misunderstood by the Applicants. Applicants did not misunderstand this double patenting rejection, and always understood it to be based on the co-pending Schuster application. Applicants have again reviewed their previous response, but are unable to ascertain the reason why the Examiner believes such a misunderstanding existed. Applicants continue to traverse this double-patenting rejection for the reasons presented in Applicants' previous response.

First, however, it should be noted that the Schuster application has now issued as United States Patent No. 6,842,005 (on January 11, 2005). Applicants realize that this does not alter the basis for the double-patenting rejection. In view of this fact, however, Applicants will refer to the "Schuster patent" in the remarks below.

As stated in Applicants' previous arguments, the comparison that forms the basis for a double-patenting rejection must be a comparison of a claim (i.e., one claim, not different elements taken from different claims) of a co-pending application or an issued patent, against a claim of the application under examination. This is made clear in MPEP §804, in sub-section II(B)(1)(a) entitled "One-Way Obviousness." That section applies because the present application and the Schuster patent were filed on the same day. In the first paragraph of that sub-section, the issue of double patenting is defined as "whether the invention defined in a *claim* in the application is an obvious variation of the invention defined in a *claim* in the patent." This clearly indicates that there must be a one-to-one comparison

between a claim of the present application and a claim of the issued patent. (Of course, the Examiner may contend that a double-patenting issue exists for more than one claim of the application under examination, however, this simply means that, for each claim for which double-patenting is alleged to exist, such a one-to-one comparison with a claim of the issued patent must be made.) In the March 3, 2005 Office Action, as in the previous Office Action, the Examiner relied on claim 23 of the Schuster patent as meeting the "cavity limitation" of claim 1 of the present application, but then stated that the "gradient coil system limitation" of claim 1 is met by the second limitation of claim 23 of the Schuster patent and claim 1 of the Schuster patent. Applicants submit this is not a permissible analysis for formulating a double-patenting rejection, because it "mixes" portions of two claims of the issued patent, and therefore does not follow the requirements of the above-cited subsection of MPEP §804. Applicants submit that the Examiner must select one and only one claim of the Schuster patent, and make an argument as to why claim 1 of the present application allegedly would have been obvious to a person of ordinary skill in the field of designing gradient coil systems for magnetic resonance apparatuses, based only on the content of the selected claim and the knowledge possessed by such a person of ordinary skill. The Examiner is not permitted to select a portion from one claim of the Schuster patent and then select a portion from another claim of the Schuster patent, and then contend that claim 1 of the present application would have been obvious based on such a combination of portions from different claims. The reason for this, as stated in Applicants' previous response and as set forth in MPEP §804, is that selecting portions from different claims of the Schuster patent represents a departure from which is actually claimed in that patent.

Applicants therefore continue to submit that the Examiner has not properly substantiated the double-patenting rejection, and Applicants therefore continue to traverse that rejection.

Claims 3, 4 and 5 were objected to be because the Examiner stated the term "units" in those claims was not clearly defined. Claim 3 has been amended to make clear that the "gradient coils" are not a "stand alone" claim element, but are formed by the respective sets of sub-coils, and these sub-coils in turn, are formed by the aforementioned units. This is consistent with the explanation provided in the present specification at page 4, in the paragraph beginning at line 15.

Claims 1-12 and 16 were rejected under 35 U.S.C. §102(b) as being anticipated by Takeshima. This rejection is respectfully traversed for the following reasons.

With regard to the element of claim 1 of the present application requiring that the middle region of the gradient coil system have a reduced mechanical stiffness compared to the edge regions of the gradient coil system, the Examiner stated Figure 7 of the Takeshima reference, for example, shows edge region component 16c fully supported by superconducting magnet 11, while component 16a is held above superconducting magnet 11 within recessed cavity 18 or the main magnet 11. The Examiner also cited other examples from other figures of Takeshima.

In general, it is Applicants' position that the Takeshima reference provides no explicit teachings whatsoever regarding how the various components indicated by the Examiner are actually physically supported in the overall scanner. In many of the figures of Takeshima, a number of the components are merely shown as "floating" within the scanner with no visible supports whatsoever. Clearly, this cannot be the

actual physical case, and a person of ordinary skill in the field of designing magnetic resonance systems would assume that some type of support must be necessary for those components. This being the case, there is no teaching whatsoever in the Takeshima reference to design that support to provide the gradient coil system with a middle region that has a reduced mechanical stiffness compared to the edge regions.

For example, in column 5, lines 34-54 of Takeshima, it is stated that the gradient coil 14 is formed by a main coil 15 and a shield coil 16. In Figures 1A, 2, 3, 4, 5,B and 7 of the Takeshima reference, different embodiments of these components are shown, primarily concerning the arrangement of the mail coil 15 and the shield coil 16 with respect to the cooling container 12 of the superconducting magnet 11. Although the cooling container 12 of the superconducting magnet 11, and the main coil 15, are identically shaped and arranged in all of these figures, the shield coils 16 differ in shape and arrangement among the different embodiments. There is always shown, however, a disk-like shield coil 16 that is disposed between the main coil 15 and the cooling container 12.

In Figure 7 of Takeshima, in addition to the disk-like shield coil 16A, there are additionally shown a cone-shaped shield coil 16B and another disk-like shield coil 16C.

In the embodiment of Figure 2, however, the disk-like shield coil 16 and the main coil 15 are shown simply as "floating" in space, with no support whatsoever being shown or described. This makes clear that the Takeshima reference is not at all concerned with disclosing or describing the details of how these components are supported, and therefore the embodiment of Figure 7 must be considered equally

schematic. A person of ordinary skill in the field of gradient coil design would assume that adequate supporting structure is provided in the embodiment of Figure 7, just as such a person must assume that adequate supporting structure is provided in the embodiment of Figure 2. This being the case, there is no teaching whatsoever in the Takeshima reference that this necessarily-present supporting structure will result in any of the embodiments, including the embodiment of Figure 7, having a middle region exhibiting reduced mechanical stiffness with respect to the edge regions. In view of the absence of any disclosure in the Takeshima relating to details of how the components in the various embodiments of that reference are physically supported, the Examiner must rely on an inherency argument in order to establish anticipation. As the Examiner is aware, in order to substantiate an allegation that a particular component is inherently disclosed in a reference, the Examiner must demonstrate that the claimed structure in question *necessarily* exists in the reference. In view of the complete absence of any discussion whatsoever in the Takeshima reference regarding how the various components are supported, Applicants respectfully submit that the Examiner cannot substantiate an "inherency" argument on this point. As noted above, a person of ordinary skill in the field of gradient coil design would not assume that no support structure is present in the various embodiments of Takeshima, since this would result in some of the components simply "floating" in space, which cannot be the case. Since it is clear that some supporting structure must necessarily be present, it is incumbent on the Examiner to demonstrate that such supporting structure necessarily will cause the gradient coil system of Takeshima to exhibit a reduced mechanical stiffness in a middle region thereof, compared to the edge regions thereof. Applicants respectfully

submit the absence of any disclosure whatsoever in the Takeshima reference precludes the Examiner from substantiating such an inherency argument.

None of claims 1-12 and 16, therefore, is anticipated by the Takeshima reference.

In paragraph 30 of the March 3, 2005 Office Action, it was stated that claims 1-12 and 16 are rejected under 35 U.S.C. §103(a) as being anticipated by Takeshima further in view of Minas. This paragraph was preceded in paragraphs 27 28 and 29 by a discussion of 35 U.S.C. §103(a), and therefore Applicants assume the term "anticipated" was erroneously used in paragraph 30. Moreover, paragraph 31 discusses claim 15, rather than any of claims 1-12 or 16. Applicants therefore assume that in paragraph 30 the Examiner intended to reject claim 15 under 35 U.S.C. §103(a) as being obvious in view of the teachings of Takeshima and Minas.

Claim 33 contains a similar problem with regard to claims 13 and 14. Applicants assume the Examiner intended to reject claims 13 and 14 under 35 U.S.C. §103(a) as being obvious (rather than anticipated) by the teachings of Takeshima and Damadian et al.

With regard to both of these rejections, the aforementioned arguments regarding the Takeshima reference are applicable. For these reasons, even if the Takeshima reference were modified in accordance with the teachings of Minas, or modified in accordance with the teachings of Damadian et al., the subject matter of claims 15, 13 and 14 still would not result. None of those claims, therefore would have been obvious to a person of ordinary skill in the art based on the teachings of Takeshima, modified either by Minas or Damadian et al.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

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